Laboratory Reports for Aerospace Engineers

As a college student preparing for the professional world, it is imperative to become familiar with the specific types of genres that are utilized in my field of study. Currently, I am studying to become an aerospace engineer. Being an aerospace engineer entitles one to participate in an abundance of research. Whether that means performing experiments, or reading about other engineering experiments to gain the knowledge needed to be successful. However, with all the information gathered by engineers, there needs to be some way to communicate this information within the discourse community. For instance, one specific type of genre utilized by engineers would be a laboratory report. To fully grasp the importance of laboratory reports within the field of engineering, one must first understand genre. To Amy Devitt, a professor at the University of Kansas, genre is “a dynamic response to and construction of recurring situation, one that changes historically and in different social groups, that adapts and grows as the social context changes” (Devitt 580). Although there is not one specific definition of genre, Devitt’s description of genre effectively proves the purpose of laboratory reports in the field of engineering. Engineering is a constantly changing field, and it needs a genre that is capable of keeping up with it, while also serving its purpose in an efficient way. Laboratory reports, one of the main genres of engineering, contain all of the necessary qualities that the engineering
field needs to be successful. Thusly, the following genre analysis will focus on three laboratory reports published in the Journal of Aircraft.

For this genre analysis, I chose to inspect three different laboratory reports all from the Journal of Aircraft. These reports were gathered through the UCF library online resources, specifically the EBSCO search database. This search database is offered for free to UCF students; however, if I would try to access this database outside of UCF, I would not be able to without buying a subscription to the Journal of Aircraft. The fact that UCF pays for these services to be offered to students and faculty members displays the importance of the information in the databases. For example, since UCF is a research university, that means that many UCF professor are actively participating in field specific research. For my field of aerospace engineering, this means that the laboratory reports in which I was able to access through the EBSCO database may also currently be being used by an engineering professor for his or her research. Therefore, exhibiting one key purpose of engineering laboratory reports: the spread of knowledge to other engineers. This aspect of laboratory reports is clearly exemplified in the academic journal *Numerical Study of Aerodynamic Efficiency of a Wing in Simulated Rain Environment*. This laboratory report was authored by M. Ismail, Cao, Yihua, Zhenlong Wu, and M Amjad Sohail, who carried out their research at the Beijing University of Aeronautics and Astronautics, located in Beijing, China. The fact the this research is currently being used by engineers in the United States as well as anywhere the Journal of Aircraft is available, perfectly shows that the engineering laboratory report spreads knowledge to other engineers all throughout the world.

Since I accessed articles from the Journal of Aircraft, the main topic for all of the
laboratory reports on this site would be relating to aircrafts. This topic is quite broad, since there is an ample amount of information that stems from aircraft related fields. However, at the same time, this is a very specific topic, and one must be in a field relative to aircraft to fully understand the information provided in these laboratory reports. Thusly, the audience for this specific genre would be mainly limited to aerospace engineers, or other fields relating to aircrafts. For example, of the three laboratory reports I chose to use for this genre analysis, all three were authored by multiple aerospace engineers. The authors all consisted of being either an aerospace engineer, an aerospace engineering student pursuing a Ph. D., or a professor of aerospace engineering with a Ph. D.. This means that the experiments documented in these laboratory reports offers a very high degree of knowledge in not only the field of engineering in general, but also in the aerospace engineering community. For instance, I am currently studying aerospace engineering, however, when I read through these reports, much of the information and lexis included is above my current level of knowledge. So, in order for one to fully participate with this specific type of genre, he or she must be of a very high intellect, while also, ideally, being an aerospace engineer.

The laboratory reports themselves are also very specific with the information they contain, as well as the formatting as a whole. At first glance, the reports essentially look like the same paper; however, the information contained in the laboratory reports is much different. At the top of each paper in bold is the title of the laboratory report, and directly below the title is a list of the authors and the institution in which the research was completed. Then, before the actual reports starts, there is a very brief (a few lines of text) summary of the information included in the laboratory report. Next, the report starts. Meaning that the authors describe the
experiment using an introduction, then go on to display the results, data, graphs etc., and finally proceed to summarize the laboratory report with a conclusion section.

Throughout all of the laboratory reports, there is an abundance of past work that the authors reference. Within the different sections of the report, the authors are constantly relating their current experiment to the experiments of other engineers, while also using some of the data that another engineer discovered. This means that the reference sections are quite lengthy since there is a large amount of information coming from outside sources. For example, the smallest references section was from the report titled *Nonlinear Flutter Analysis for the Scaled F-35 with Horizontal-Tail Free Play*. This laboratory report contained only 17 citations. While the report with the largest reference section was titled *Numerical Investigation of Actively Cooled Structures in Hypersonic Flow*. This report contained 44 citations, more than double the previous report. However, the works cited section is closely related to the overall length of the laboratory report. Since the report with 44 references is almost twice the length of the report with only 17 references. The large reference sections means that the information and experiments an engineer publishes in a laboratory report has a very good chance of being used by other engineers to perform further experiments in hopes to continue the expansion of the engineering field.

Conclusively, laboratory reports are a very common form of genre used by all types of engineers. The purpose they possess is to spread knowledge and information within their discourse community. As the field of engineering changes and continues to advance, the laboratory reports used may also evolve to accompany the purpose in which they serve, or need to serve (Barwarshi, Devitt, and Reiff). By writing laboratory reports, engineers are constantly
using the knowledge of one another to continue to explore and expand the field of engineering as well and the technology used by humans everyday.
Works Cited


